REMARKS

**Status of the claims:**

With the above amendments, claims 6 and 18 have been amended. No new matter has been added by way of the above amendments. The amendments are non-narrowing amendments that are made simply to clarify the language. Claims 1-20 are pending and ready for further action on the merits. Entry of the amendments and reconsideration of the claims are respectfully requested in light of the following remarks.

**Rejections under 35 USC §112, second paragraph**

Claims 6 and 18 are rejected under 35 USC §112, second paragraph as being indefinite. The Examiner asserts that the claims 6 and 18 are indefinite because the use of '$M^{I}$' and '$M^{III}$' indicate that they should be compounds, but they are used to describe metals. The Examiner has recommended amending claim 6 to recite "$M^{I}$ indicates at least one compound of an alkali metal selected from the group consisting of Li, Na, K, Rb, and Cs, excluding $Al_2O_3$ . . ." and "$M^{III}$ indicates at least one compound of a trivalent metal selected from the group consisting of Al, Ga, In, Tl, Sc, Y, Cd, and Lu excluding $Al_2O_3$ . . ." Both claims 6 and 18 have been amended accordingly. Withdrawal of the rejection is respectfully requested.

**Rejections under 35 USC §103**

Claims 1-3, 5-7, 9-10, 12, 14-15, and 17-20 remain rejected under 35 USC §103(a) as being unpatentable over Leblans '578 (US Patent No. 5,360,578).

Claims 4 and 16 remain rejected under 35 USC §103(a) as being unpatentable over Leblans '578 in view of Jamil '916 (US Patent No. 5,772,916).

Claims 8 and 13 remain rejected under 35 USC §103(a) as being unpatentable over Leblans '578 in view of Ochiai '971 (US Patent No. 4,501,971).

Claim 11 remains rejected under 35 USC §103(a) as being unpatentable over Leblans '578 in view of Hultsch '454 (US Patent No. 4,405,454).

These rejections are traversed for the following reasons.

Present Invention

The present invention discloses a method of manufacturing a radiation image conversion panel, comprising the steps of: a) dispersing a calcined product of stimulable phosphor in a dispersion medium, to obtain a slurry; b) eliminating grains that are of at least a predetermined size from the slurry, using wet classification; c) adding to the slurry, a binder that is substantially soluble therein, to prepare a coating material;

and d) applying the coating material to a support and drying to thereby form a phosphor layer.

Disclosure of Leblans '578

Leblans '578 discloses a method for preparing metal halide phosphor particles (e.g. barium- and/or strontium-containing halide phosphor particles) of a selected particle size range. The method comprises the following steps: (1) firing the raw mixture materials of said phosphor to produce a sintered phosphor mass that is pulverized, (2) mixing said pulverized phosphor mass, optionally after one or more firings, in a liquid mainly containing a water-miscible organic solvent with an organic acid dissolved therein, said acid being capable of forming with metal contained in the phosphor a salt the solubility of which in water at 20°C is less than 0.5 g per 100 ml, and (3) subjecting the treated phosphor particles in wet and/or in dry state to a separation treatment to collect phosphor particles having a grain size smaller than 40 μm but larger than 2 μm.

Disclosure of Jamil '916

Jamil '916 discloses a phosphor powder for producing a high resolution phosphor screen and a phosphor screen. The phosphor screen comprises a substrate, an infrared-absorbing layer, and a

phosphor layer coated on the infrared-absorbing layer. The phosphor layer comprises a phosphor powder in which a substantial amount of particles in the powder have a particle size as measured in the longest dimension of greater than 0 and less than about 5 microns. The phosphor screen may also comprise a black, infrared-absorbing substrate with the phosphor layer coated on the substrate. The phosphor powder is formed by preparing a phosphor composition, sintering the composition to form ingots, grinding the ingots to form a powder wherein a substantial amount of particles in the powder have a particle size of greater than 0 and less than about 5 microns. The powder is then reactivated in an inert atmosphere to a temperature of from about 500°C to about 550°C, wherein the suspension of the powder is prepared in a non-reactive organic solvent, and the suspension is mixed to separate particles of the powder which partially fuse during reactivation and to break up large agglomerates of the powder in the suspension. Finally, the suspension is decanted to at least partially separate the non-reactive inorganic solvent and the powder, and the powder is dried to form the phosphor powder.

Disclosure of Ochiai '971

Ochiai '971 discloses a radiographic intensifying screen comprising a substrate and a fluorescent layer provided thereon

and consisting essentially of a binder and a radio-luminescent phosphor dispersed therein. The binder comprises a linear polyester resin or a linear polyester resin crosslinked with a crosslinking agent.

Disclosure of Hultsch '454

Hultsch '454 discloses a process for the de-watering and particle classification of solids from suspensions, (e.g. coal from a slurry in which the coal is transported). Hultsch '454 further discloses the use of a de-watering centrifuge having two frustoconical centrifuge drum sections of different inclinations such that in a first filtering zone the particles are preliminarily dewatered and then pass by automigration to the next centrifuge drum at which further dewatering takes place. The suspension on the first sieve surface forms a thin layer classification zone having a thickness up to 5 mm and in which the coarse fraction is retained while the fine fraction is passed. The coarse fraction automigrates to the next sieve surface where it is de-watered and the fine fraction separated out in the thin layer classifying zone is then filtered under pressure in a subsequent stage.

Removal of Leblans '578, Jamil '916, Ochiai '971, and Hultsch '454

The Examiner asserts that the instantly rejected claims do not exclude a drying step after wet classification. Applicants respectfully but vigorously disagree. Applicants assert that one of ordinary skill in the art would understand that no drying occurs after the slurry is obtained in claim 1, step (a) because the slurry has grains eliminated from it in step (b) of claim 1 and then the slurry has a binder added to it in step (c) of claim 1. Because the phrase "**the** slurry" is used (emphasis added), "**the** slurry" is the same "**a** slurry" made in claim 1, step (a). The "the" refers in the antecedent to the "a". Thus, an intermediate drying step cannot be present. Thus, the claims as present do not encompass an intermediate drying step as the Examiner asserts.

This lack of a drying step is important because the present invention prevents aggregation of grains. As was pointed out in the response of January 31, 2002, the graininess present in comparative Example 1, where drying was conducted after wet classification, was inferior to the graininess of Example 1, where a binder was added to the slurry without drying the slurry after wet classification. Because Leblans '578 includes drying

after wet classification, the process of Leblans '578 is inferior to the instant process.

Moreover, in Comparative Example 1, dry classification was conducted with a vibrating screen (using nylon mesh #460) after wet classification (please see page 34). Therefore, the classification in Comparative Example 1 was conducted twice whereas the classification was conducted only once in Example 1. Dry classification was required in Comparative Example 1 because unpreferred aggregation particles having a size of 20 μm or more were formed. Preferable results were not obtainable even though classification was conducted twice in Comparative Example 1. Please see Table 1 in the written description.

Thus, even if one were to assert that a *prima facie* case of obviousness has been met (which Applicants do not concede), the instant invention shows unexpected results that could not be surmised by the disclosures of Leblans '578, Jamil '916, Ochiai '971, and Hultsch '454, particularly of Leblans '578. Because Leblans '578 is present in all of the rejections, all of the rejections are inapposite because all of the other references fail to make up the deficiencies of Leblans '578. Withdrawal of the rejections is warranted and respectfully requested.

With the above remarks and amendments, it is believed that the claims, as they now stand, define patentable subject matter

such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.

If any questions remain regarding the above matters, please contact Applicant's representative, T. Benjamin Schroeder (Reg. No. 50,990), in the Washington metropolitan area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS**:

The claims have been amended as follows:

6. (Amended) A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of dispersing includes providing a calcined product of a stimulable phophor that is a rare earth-activated alkaline earth metal fluoro-halide based phosphor, represented by a constitutional formula (I) as follows:

$$(Ba_{1-a}, M^{II}_a)FX \cdot bM^{I} \cdot cM^{III} \cdot dA:xLn \quad (I)$$

wherein, $M^{II}$ indicates at least one kind of alkaline earth metal selected from the group consisting of Sr, Ca, and Mg; $M^{I}$ indicates at least one [kind of alkali metal] compound <u>of an alkali metal</u> selected from the group consisting of Li, Na, K, Rb, and Cs; $M^{III}$ indicates at least one [kind of trivalent metal] compound <u>of a trivalent metal</u>, excluding $Al_2O_3$, selected from the group consisting of Al, Ga, In, Tl, Sc, Y, Cd, and Lu; X indicates at least one kind of halogen selected from the group consisting of Cl, Br, and I; Ln indicates at least one kind of rare earth element selected from the group consisting of Ce, Pr, Sm, Eu, Gd, Tb, Dy, Ho, Nd, Er, Tm, and Yb; A indicates at least one kind of metallic oxide selected from the group consisting of

$Al_2O_3$, $SiO_2$, and $ZrO_2$; and a, b, c, d and x are respectively set so as to satisfy relational expressions $0 \leq a \leq 0.3$, $0 \leq b \leq 2$, $0 \leq c \leq 2$, $0 \leq d \leq 0.5$, and $0 < x \leq 0.2$.

18. (Amended) A method for manufacturing a radiation image conversion panel according to claim 14, wherein the step of dispersing includes providing a calcined product of a stimulable phophor that is a rare earth-activated alkaline earth metal fluoro-halide based phosphor, represented by a constitutional formula (I) as follows:

$$(Ba_{1-a}, M^{II}_a)FX \cdot bM^{I} \cdot cM^{III} \cdot dA:xLn \quad (I)$$

wherein, $M^{II}$ indicates at least one kind of alkaline earth metal selected from the group consisting of Sr, Ca, and Mg; $M^{I}$ indicates at least one [kind of alkali metal] compound <u>of an alkali metal</u> selected from the group consisting of Li, Na, K, Rb, and Cs; $M^{III}$ indicates at least one [kind of trivalent metal] compound <u>of a trivalent metal</u>, excluding $Al_2O_3$, selected from the group consisting of Al, Ga, In, Tl, Sc, Y, Cd, and Lu; X indicates at least one kind of halogen selected from the group consisting of Cl, Br, and I; Ln indicates at least one kind of rare earth element selected from the group consisting of Ce, Pr, Sm, Eu, Gd, Tb, Dy, Ho, Nd, Er, Tm, and Yb; A indicates at least one kind of metallic oxide selected from the group consisting of $Al_2O_3$, $SiO_2$, and $ZrO_2$; and a, b, c, d and x are respectively set

so as to satisfy relational expressions $0 \leq a \leq 0.3$, $0 \leq b \leq 2$, $0 \leq c \leq 2$, $0 \leq d \leq 0.5$, and $0 < x \leq 0.2$.